



The Importance of Self-Healing SD-WAN



As software-defined wide-area networking (SD-WAN) continues to grow in popularity, it is critical to understand what differentiates a secure SD-WAN solution from the much bigger landscape of products and services described as SD-WAN.

Secure SD-WAN consolidates advanced routing, next-generation firewall (NGFW) capabilities, and intuitive orchestration into a single, integrated solution. But there's an important aspect to secure SD-WAN that's sometimes overlooked in the industrywide rush to categorize and market the technology: **self-healing**.

Mastering an Unpredictable Internet

Over the next five years, SD-WAN is expected to reach more than 60% of enterprises.¹ It's easy to understand why: SD-WAN solutions transform an organization's capabilities by leveraging the corporate wide-area network as well as multi-cloud connectivity to deliver high-speed application performance at the WAN edge of distributed (i.e., branch) sites.

A big benefit of SD-WAN is that it provides a dynamic path selection among connectivity options—multiprotocol label switching (MPLS), 4G/5G, or broadband—ensuring organizations can quickly and easily access business-critical applications from the cloud. This is important for organizations that need fast, scalable, and flexible connectivity among different network environments, and want to reduce total cost of ownership (TCO) while preserving user experience. But the wrong SD-WAN product can significantly inhibit an organization's ability to quickly adapt to changing business demands—not least because it creates new security headaches.

Adapting Fast Is the Key Idea of Self-healing SD-WAN

The internet is unpredictable, and network outages—no matter how robust the WAN infrastructure is thought to be—are sometimes unavoidable. The best SD-WAN solutions, therefore, can bridge gaps in internet reliability to deliver the best application performance. How? By quickly self-healing when an outage or disruption is affecting connectivity.

Large and distributed enterprises that span multiple countries and regions grapple with internet impairment and outages on a regular basis. If SD-WAN must be reconfigured or manually intervened upon every time there's a wider internet connectivity issue, many attendant benefits of SD-WAN technology become negligible.

Choosing the Right Secure SD-WAN Solution

SD-WAN should simplify operations, reduce cost, and deliver the best user experience. In doing so, it must also provide reliable, secure, and optimized connectivity. Crucial to this is an SD-WAN solution that can:

- Auto-correct network impairments using remediation techniques and advanced analytics
- Support high availability for failovers
- Do both of the above as effectively in multi-cloud environments as in other use cases

Automatic Remediation

In order to remediate problems related to connectivity—and therefore, self-heal—SD-WAN solutions must be able to proactively measure network conditions such as latency, jitter, and packet loss on any WAN link. From there, businesses can tie in policies with application service-level agreements (SLAs) that help determine how to steer network traffic based on the best-performing WAN links.

But what if more than one supposedly viable WAN link is still performing poorly? Rather than sacrifice user experience, organizations should adopt SD-WAN solutions that use **advanced techniques such as forward error correction and packet duplication**—on top of SLA-based path steering—to quickly recover. Think of how fast the user experience crumbles in critical applications such as Unified Communications-as-a-Service (UCaaS) when even a bit of network connectivity is impaired. And with an increasingly remote workforce, whose power users depend on UCaaS and other software to stay productive, all businesses need to be able to recover fast from poorly performing connections.

SaaS Optimization

Optimized access to Software-as-a-Service (SaaS) applications is essential for any business with accelerated cloud adoption. Providers should be able to offer middle-mile optimization with strategic use of points of presence (POPs) that can route application traffic intelligently to ensure low latency and best performance for these critical applications.

Integrated AI

More advanced secure SD-WAN solutions use artificial intelligence (AI)-powered application learning to detect and prioritize UCaaS and other connectivity-intensive cloud applications for direction over the best path for traffic forwarding. Bandwidth plays such a critical role in determining what that best available path is, so the secure SD-WAN solution needs to take the guesswork out of finding it and choose the best available performing WAN link at any time.

Centralized Orchestration

All enterprise network infrastructure teams know that anomalies can affect network performance, often without warning. Teams must be able to rapidly investigate network anomalies, assess them against the current and historical network information using runtime reports, and use those reports to make quick resolutions to business policy and application priority. Doing so becomes a much simpler process with centralized orchestration that can provide the advanced analytics and telemetry needed for a granular view of network and application performance. Self-healing SD-WAN capabilities include this kind of rapid change management—at scale.

Failure Is Not an Option

Layers of redundancy ensure that SD-WAN solutions won't fail. Organizations should look to solutions that offer device redundancy during a network failure, WAN transport redundancy with multilink support, and port redundancy.

The right monitoring capabilities will also allow teams to find points of failure in WAN transport, interfaces, or appliances and enable sub-section application traffic switchover as needed. That switchover is critical to self-healing the network in the case of outages.

With the right secure SD-WAN solution, network engineering and operations leaders have the extensive WAN capabilities they need to ensure applications are available and functioning without human intervention. Team priorities—even with IT resource constraints—can then shift toward future-proofing the network and ensuring fast, reliable, scalable, and consistent outcomes for employees and customers everywhere.

¹ Tobias Mann, "[SD-WAN to Clip WAN Edge Growth, Gartner Predicts](#)," SDxCentral, December 16, 2019.